

In the Claims

Applicant has submitted a new complete claim set showing marked up claims with insertions indicated by underlining and deletions indicated by strikeouts and/or double bracketing. This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) Isolated RNA of from about 21 to about 23 nucleotides that has sequence correspondence to an mRNA and mediates RNA interference by directing cleavage of the mRNA to which it corresponds wherein cleavage is directed within the region of sequence correspondence with the isolated RNA, and wherein the mRNA is mammalian cellular mRNA or viral mRNA.
2. (previously presented) Isolated RNA of claim 1 that comprises a terminal 3' hydroxyl group.
3. (previously presented) Isolated RNA of claim 1 which is chemically synthesized RNA.
- 4-11. (Canceled Herewith).
12. (Currently Amended) RNA of about 21 to about 23 nucleotides produced by the method comprising:
 - (a) combining double-stranded RNA with a soluble extract that mediates RNA interference, thereby producing a combination; and
 - (b) maintaining the combination of (a) under conditions in which the double-stranded RNA is processed to RNA of from about 21 to about 23 nucleotides in length, wherein the mRNA is mammalian cellular or viral mRNA.
- 13-15. (Canceled Herewith).

16. (Currently Amended) Isolated RNA of from about 21 to about 23 nucleotides that mediates RNA interference of mRNA of a gene to be degraded produced by the method comprising:

- (a) combining double-stranded RNA that corresponds to a sequence of the gene to be degraded with a soluble extract that mediates RNA interference, thereby producing a combination; and
- (b) maintaining the combination of (a) under conditions under which the double-stranded RNA is processed to RNA of from about 21 to about 23 nucleotides that mediates RNA interference of the mRNA of the gene to be degraded, thereby producing RNA of from about 21 to about 23 nucleotides that mediates RNA interference of the mRNA, and further comprising isolating RNA of from about 21 to about 23 nucleotides from the combination, wherein the mRNA is mammalian cellular mRNA or viral mRNA.

17-41. (Canceled Herewith).

42. (previously presented) A gene identified by the sequencing of endogenous 21 to 23 nucleotide RNA molecules that mediate RNA interference.

43. (Currently Amended) A pharmaceutical composition comprising RNA of from about 21 to about 23 nucleotides that has sequence correspondence to an mRNA and mediates RNA interference by directing cleavage of the mRNA to which it corresponds and an appropriate carrier, wherein cleavage is directed within the region of sequence correspondence with the RNA, and wherein the mRNA is mammalian cellular mRNA or viral mRNA.

44-47. (Canceled Herewith).

48.-50. (canceled).

51-71 (Canceled Herewith).

72. (Currently Amended) Isolated DNA comprising DNA encoding RNA that is processed in eukaryotic cells to RNA segments of about 21 to about 23 nucleotides in length that have sequence correspondence to an mRNA and mediates RNA interference by directing cleavage of the mRNA to which the segments correspond, wherein cleavage is directed within the region of sequence correspondence with the RNA, and wherein the mRNA is mammalian cellular mRNA or viral mRNA.

73. (Canceled Herewith).

74. (Currently Amended) Isolated DNA comprising DNA encoding RNA that is processed in eukaryotic cells to RNA segments of about 21 to about 23 nucleotides in length that have sequence correspondence to an mRNA and mediates RNA interference of the mRNA of a gene, wherein the mRNA is mammalian cellular mRNA or viral mRNA.

75. (Currently Amended) Isolated DNA comprising DNA encoding RNA that is processed in eukaryotic cells to RNA segments of about 21 to about 23 nucleotides in length that have sequence correspondence to an mRNA and targets the mRNA of a protein for degradation, wherein the mRNA is mammalian cellular mRNA or viral mRNA.

76. (Currently Amended) Isolated double-stranded RNA of from about 21 to about 23 nucleotides that has sequence correspondence to an mRNA and mediates RNA interference by directing cleavage of the mRNA to which it corresponds, wherein cleavage is directed within the region of sequence correspondence with the isolated RNA, and wherein the mRNA is mammalian cellular mRNA or viral mRNA.

77. (previously presented) Isolated double-stranded RNA of claim 76 that comprises a terminal 3' hydroxyl group.

78. (previously presented) Isolated double-stranded RNA of claim 76 which is chemically synthesized RNA.

79-80. (Canceled Herewith).

81. (Currently Amended) A pharmaceutical composition comprising double-stranded RNA of from about 21 to about 23 nucleotides that has sequence correspondence to an mRNA and mediates RNA interference by directing cleavage of the mRNA to which it corresponds and an appropriate carrier, wherein cleavage is directed within the region of sequence correspondence with the RNA, and wherein the mRNA is mammalian cellular mRNA or viral mRNA.

82. (Currently Amended) Isolated DNA comprising DNA encoding double-stranded RNA that is processed in eukaryotic cells to RNA segments of about 21 to about 23 nucleotides in length that have sequence correspondence to an mRNA and mediates RNA interference by directing cleavage of the mRNA to which the segments correspond, wherein cleavage is directed within the region of sequence correspondence with the RNA, and wherein the mRNA is mammalian cellular mRNA or viral mRNA.

83. (Canceled Herewith).

84. (Currently Amended) Isolated DNA comprising DNA encoding double-stranded RNA that is processed in eukaryotic cells to RNA segments of about 21 to about 23 nucleotides in length that have sequence correspondence to an mRNA and mediates RNA interference of the mRNA of a gene, wherein the mRNA is mammalian cellular mRNA or viral mRNA.

85. (Currently Amended) Isolated DNA comprising DNA encoding double-stranded RNA that is processed in eukaryotic cells to RNA segments of about 21 to about 23 nucleotides in length that have sequence correspondence to an mRNA and targets the mRNA of a protein for degradation, wherein the mRNA is mammalian cellular mRNA or viral mRNA.

86. (Currently Amended) Isolated RNA of from about 21 to about 23 nucleotides that has sequence correspondence to an mRNA and mediates RNA interference by directing cleavage of the mRNA to which it corresponds, wherein the isolated RNA is obtained from double-stranded RNA that has been cleaved into fragments of about 21 to about 23 nucleotides, wherein cleavage is directed within the region of sequence correspondence with the isolated RNA, and wherein the mRNA is mammalian cellular mRNA or viral mRNA.

87. (previously presented) Isolated RNA of claim 86 that comprises a terminal 3' hydroxyl group.

88. (previously presented) Isolated RNA of claim 86 which is chemically synthesized RNA.

89-90. (Canceled Herewith).

91. (Currently Amended) A pharmaceutical composition comprising isolated RNA of from about 21 to about 23 nucleotides that has sequence correspondence to an mRNA and mediates RNA interference of the mRNA to which it corresponds, wherein the isolated RNA is obtained from double-stranded RNA that has been cleaved into fragments of about 21 to about 23 nucleotides, wherein the mRNA is mammalian cellular mRNA or viral mRNA.

92. (Currently Amended) Isolated DNA comprising DNA encoding RNA of from about 21 to about 23 nucleotides that has sequence correspondence to an mRNA and mediates RNA interference by directing cleavage of the mRNA to which the RNA correspond, wherein cleavage is directed within the region of sequence correspondence with the RNA, and wherein the mRNA is mammalian cellular mRNA or viral mRNA.

93. (Canceled Herewith).

94. (Currently Amended) Isolated DNA comprising DNA encoding RNA of from about 21 to about 23 nucleotides that has sequence correspondence to an mRNA and mediates RNA interference of the mRNA of a gene, wherein the mRNA is mammalian cellular or viral mRNA.

95. (Currently Amended) Isolated DNA comprising DNA encoding RNA of from about 21 to about 23 nucleotides that has sequence correspondence to an mRNA and targets the mRNA of a protein for degradation, wherein cleavage is directed within the region of sequence correspondence with the RNA, and wherein the mRNA is mammalian cellular mRNA or viral mRNA.

96-105. (Canceled Herewith).

106. (previously presented) Isolated RNA of any one of claims 1, 43, 72, 74, 75, 76, 81, 82, 84, 85, 86, 91, 92, 94, and 95 wherein the isolated RNA is complementary to the mRNA.

107. (Canceled Herewith).

108. (Currently Amended) Isolated RNA of any one of claims 1, 5, 12, 16, 43, 72, ~~73~~, 74, 75, 76, ~~80~~, 81, 82, ~~83~~, 84, 85, 86, ~~90~~, 91, 92, ~~93~~, 94, and 95 wherein the mRNA is human mRNA.

109. (Canceled Herewith).

110. (New) Isolated RNA of from about 21 to about 23 nucleotides that has sequence correspondence to an mRNA and mediates RNA interference by directing cleavage of the mRNA to which it corresponds wherein cleavage is directed within the region of sequence correspondence with the isolated RNA, and wherein the mRNA is mammalian cellular mRNA or viral mRNA, wherein one or more nucleotides of the isolated RNA are a non-naturally occurring nucleotide or deoxyribonucleotide or non-standard nucleotide.

111. (New) The isolated RNA of claim 110, wherein the isolated RNA is isolated double-stranded RNA.

112. (New) Isolated RNA of from about 21 to about 23 nucleotides that has sequence correspondence to an mRNA and mediates RNA interference by directing cleavage of the mRNA to which it corresponds, wherein the isolated RNA is obtained from double-stranded RNA that has been cleaved into fragments of about 21 to about 23 nucleotides, wherein cleavage is directed within the region of sequence correspondence with the isolated RNA, and wherein the mRNA is mammalian cellular mRNA or viral mRNA, wherein one or more nucleotides of the isolated RNA are a non-naturally occurring nucleotide or deoxyribonucleotide or non-standard nucleotide.

113. (New) Isolated RNA of any one of claims 1, 12, 16, 43, 72, 74, 75, 76, 81, 82, 84, 85, 86, 91, 92, 94, and 95 wherein the isolated RNA is from about 21 to 24 nucleotides in length.

114. (New) Isolated RNA of claim 113 wherein the isolated RNA is from about 21 to 23 nucleotides in length.